OUR NATIONAL FINANCES.

At this time, when our Government is demanding money to maintain the great cause of the people against the machinations of Southern traitors leagued with the governing classes of Europe to work prejudice to our free institutions, it behooves every patriotic man and woman to come to the assistance of the popular cause. Our Government must have money. The people, if they would sustain their own great cause against common calamity, must furnish it. Some are speaking words of encouragement; others are sedulously endeavoring to work discouragements through every vicious pliancy possible to be adopted, in order to carry the popular mind away from its true direction. Every one should join in the inculcation of confidence in the stability of our Government, its integrity, and its ability to make good all its engagements. In elucidation of our fast-growing power in finance we republish an extract from Mr. Sherwood's Champlain speech, delivered in October, 1862. From this short extract it will appear self-evident to any mind capable of grasping the question, how weak and idle it is for the timid to indulge their fears, and how vicious and prejudicial it is for party contumacy to work disparagements. We should never forget that our *common cause* is every man's own cause, and that we cannot separate our individnal from the public welfare.

THE WAR DEBT ENDURABLE IF THE UNION IS SAVED.

"It is true, my friends, that we are rolling up an immense war debt; but let it be remembered that such debt is the result of efforts to maintain free government. We shall have the debt whether we maintain the jurisdiction of the government or not. We cannot escape it, nor can we escape taxation to meet the interest or redeem the principal, unless we go into repudiation under the disabling process created by disintegration. Suppose it reaches the amount of the public debt of England; it will still be endurable and easily borne if we hold our country together. The English debt is cared for by the population of the British Islands, embracing a territory about twice as large as New York, with a population of about thirty millions. The colonies of Great Britain contribute nothing. They are a large expense on the British exchequer. The home country—England, Ireland, and Scotland—is casting off the exuberance of its crowded population. It has not home territory upon which to increase its population and expand its home resources. Our condition is entirely different. We stretch from ocean on the east to ocean on the west—from the St. Lawrence on the north to the Rio Grande on the South. We have the best agricultural country in the world—more good land than in Europe. We have the great backbone of the mining wealth of North America—the precious metals in abundance. We have every facility within ourselves for agriculture, commerce, mining, and manufactures, on the broadest and most extended scale. Look to the prospective population, wealth and resources of this great home country that lie in the almost immediate future. If we maintain our national jurisdiction, and with its attractive free government, what a platform for population, and wealth, and enterprise, and accumulating resources, to exert themselves upon! But a few years in the annals of nationality, and we have one—two—three hundred millions of human beings to take care of this debt—this price of free government. Think you that this posterity will not appreciate the efforts of their fathers to transmit to them free government? This future mass of men, women and children, would care nothing for the trifle of such a public debt as we make, if the national unity and free institutions go along with it. Do not, my friends, balk and stall in your efforts, at the idea of an insurmountable public debt. Do right to your principles. Do right to your children. Do right to your posterity. Do right to the hopes of the liberalists all over the world in maintaining free government, and all will be well. Be not discouraged. Again I say, do your duty, and you are on safe ground. You need not be discouraged."

Thievish Robins.

A correspondent of *The Circular*, Oneida, N. Y., says:—"Yesterday some of our boys in high glee brought in my room an astounding conglomeration of sticks, straws, mud, and—*ladies' collars!* This I soon made out to be a robin's nest. The collars—light strips of lace, crochet work, and plain linen—were woven into the body of the nest in all sorts of tangles, and hung around it like beggars' streamers. Our young ladies and some of the older ones have missed their collars lately at a wonderful rate, and were beginning to think that thieves were about. And behold! an industrious robin had built her house of them! The boys saw the robin carrying one off from the grass-plot where they were drying, followed her, and found *twenty-nine* of the missing collars woven into one nest!"

NEW BOOKS AND PUBLICATIONS.

WATSON'S WEAVING BY HAND AND POWER. Henry Carey Baird, Publisher, 406 Walnut street, Philadelphia.

The author, in his preface of this work, says truly:—"To acquire a competent knowledge of any art it must be learned, either by reading, verbal teaching, observation and reflection, or actual practice; and as it is of the utmost importance to the apprentice in any branch of business to be told the theory of it, and shown how to use the tools connected with that particular branch, it must be of use to the apprentice or young beginner in the weaving trade also. Believing this, I have written this volume on the theory and practice of weaving, and have through its pages given instructions how any one with ordinary capacity and perseverance may learn the theory of the art. The writer, when a beginner in the trade, had often felt the want of such a book, and considering that others would be similarly situated, was induced to undertake to write this work; for at the time he began his apprenticeship in the power-loom trade, it was more the rule to keep the apprentice in ignorance than teach him the theory of the art; however, that narrow-minded selfishness is, happily, now the exception. This volume is written more especially for power-loom weaving, but it may prove of equal use to the hand-loom manufacturer, as the principles in both are the same."

A careful examination of the contents convinces us that the author has undertaken his work with enthusiasm, and conscientiously executed it. The publisher has brought the book out in handsome style; the large and beautiful type adds greatly to its value as a standard work.

BAGS.

The whole world of organized beings is put into bags, and is made up of bags. If we examine our own bodies we find that every organ is placed in its appropriate sack, and each is formed of a series of sacks. The brain is surrounded by the pericranium, the heart by the pericardium, each bone by the periosteum, and all of these are delicate membraneous bags. Each one of us, as well as each of the myriads of lower orders of animals that have appeared on the earth, commenced its existence as a simple sack or cell; and its growth proceeded by the addition of other cells. If we place a thin shaving of any bone, or a minute scrap of any organ under a microscope, we find that it is formed of multitudes of minute cells, or bags. And finally the whole system is put into that perfect bag, the skin.

Bags also play a great part in civilization. The whole organization of society—with its commerce, manufactures and agriculture, its armies and navies, its churches and courts, its republics and monarchies, its opulence and its pauperism—all depends upon that little cloth bag—the pocket.

THE export duty on rags used for the manufacture of paper is in France twenty-five dollars per tun, and in Germany forty-five dollars per tun. The consequence is the manufacturers of paper in those countries, having the protection in amount, undersell the British manufacturers, who, besides, have to pay an import duty of from twenty-five to thirty per cent to their own Government.

TO RENDER THE TASTE OF MEDICINE PALATABLE.—It has been ascertained by M. Graw that the intensely bitter and nauseous taste of many drugs may be completely disgüised by mixing them with chloroform. It is claimed that even the bitter taste of quinia and the peculiar odor of asafetida can be thus destroyed.

ISSUED FROM THE UNITED STATES PATENT-OFFICE
FOR THE WEEK ENDING JULY 19, 1864.

Reported Officially for the Scientific American.

☞ Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

43,558.—Converting Motion.—William H. Akins, Dryden, N. Y.:

I claim the wheels, I I', provided with inclined planes, b b', and rollers, c c', and firmly keyed to the shafts, G G', in combination with the cog-wheels, J J', and drums, F F', running loosely on the shafts, G G', and with the reciprocating bar, D, constructed and operating in the manner and for the purpose substantially as herein shown and described.

43,559.—Corn Planter.—Thomas K. Alexander, Decatur, Ill.:

I claim the spring-hook, K, in combination with the hinges, a, connecting the two parts of the frame, A, as and for the purpose specified.

[This invention relates to an improvement in that class of corn planters in which the seed is] discharged by the action of a double-acting slide, simultaneously from two hoppers in furrows opened by sleigh-runner shaped shares, and covered by two broad wheels with flat faces.]

43,560.—Truss for Uterine Support.—Edmund P. Banning, New York City:

I claim, first, The uterine balance, J J1 J2 J3, constructed and operating substantially as described.

Second, The cap or block, I', constructed with two convexities and operating to support the vulva, in the manner described.

Third, In combination with the spring, B B, and uterine balance, J J1 J2 J3, I claim the curved spring, I, adapted as explained to permit the ready attachment, removal, and adjustment of the said balance.

43,561.—Sawing Machine.—E. Berrey, Auburn, Ind.:

I claim the combination of the fly-wheel, D, wrist, a, driving pitman, E, cross-head, F, saw pitman, M, gate, J, and rollers, L L, all constructed, arranged, and operating in the manner and for the purposes herein specified.

[This invention pertains to the class of sawing machines used for cross cutting logs, fire-wood, tc. Th above is a very ingeniously arranged, simple, and economical combination, and promises to be of much value. Wherever a sawing machine is wanted which will work quickly, with but little expenditure of power, this device will be found to answer the purpose.]

43,562.—Manufacture of Steel.—Josiah N. Bird, New York City:

I claim the manufacture of steel from non-carbonized or decarbonized iron, by cutting the latter into small pieces or shavings, and afterwards applying the carbonizing agent, all as herein described.

[The mode of manufacturing steel commonly practiced in this country is to take iron bars, cut them up into small pieces, which are put into pots with carbonaceous matter, and subjected to heat in a suitable furnace till carbonized and melted. The molten metal is then formed into ingots, which are drawn by hammers or between rolls into bars. This invention consists in the manufacture of steel direct from the blooms, without drawing them into bars.]

43,563.—Tanning Leather.—John S. Boothby, Portland, Maine:

I claim the tanning composition, substantially as herein-before described.

And I also claim the above specified process of tanning by the materials, as herein-before described.

43,564.—Bee-hive.—H. C. Boyers, Danville, Iowa:

I claim the trough, D, constructed substantially as described, so as to be accessible to the miller and not to the bee, in combination with the hive, as and for the purposes herein specified.

43,565.—Lightning Conductor.—N. Brittan, Chicago, Ill.:

I claim a series of points or tips, i i i, formed of spiral coils when the same are combined in one piece with a tubular portion, h, and a continuous flat strip, f A, all as herein described and for the purposes specified.

43,566.—Manufacture of Sugar.—Harlow Butler, Chesterfield, Ohio:

I claim the above-described process of soaking sorghum and other sugar cane in lime water, previous to grinding, substantially in the manner and for the purposes described.

43,567.—Grain Bag.—J. W. H. Campbell, San Francisco, Cal.:

I claim, as a new article of manufacture, a grain bag, constructed as described.

43,568.—Steam Engine.—F. A. Calvert, Lowell, Mass. Patented in England Sept. 14, 1860:

I claim supplying warm air or vapor to the cylinder previous to the admission of steam thereto, by means of such an arrangement of mechanical devices as will permit both the ingress and shutting off of such supply of air or vapor at the proper time to accomplish the desired result, as set forth.

43,569.—Car Coupling.—M. H. Card and Thomas Tripp, Chicago, Ill.:

We claim, first, The combination and arrangement of the slotted draw-head, A, with the hook, C, provided with the link, B, and the spring, F, as and for the purposes specified and as set forth.

Second, We claim the reciprocating arranged hooks, C C, and links, B B, controlled and operated by a spring or springs, substantially as and for the purposes specified.

Third, We claim the adjustable link, B, in combination with the hook, C, as and for the purposes set forth.

Fourth, We claim constructing the head of the hook of such configuration that the ordinary coupling link may be used, as herein described and shown.

43,570.—Hold-back and Trace-fastening for Vehicles.—H. W. Catlin, Burlington, Vt.:

I claim the fixed or rigid hook, A, in combination with the swinging or pivoted eye, b, arranged to operate in the manner substantially as and for the purpose set forth.

43,571.—Breech-loading Fire-arm.—Francis Clark, North Oxford, Mass.:

I claim, first, Fitting the movable breech-block, E, to turn upon a