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Improvement in Cotton and Hay Presses.

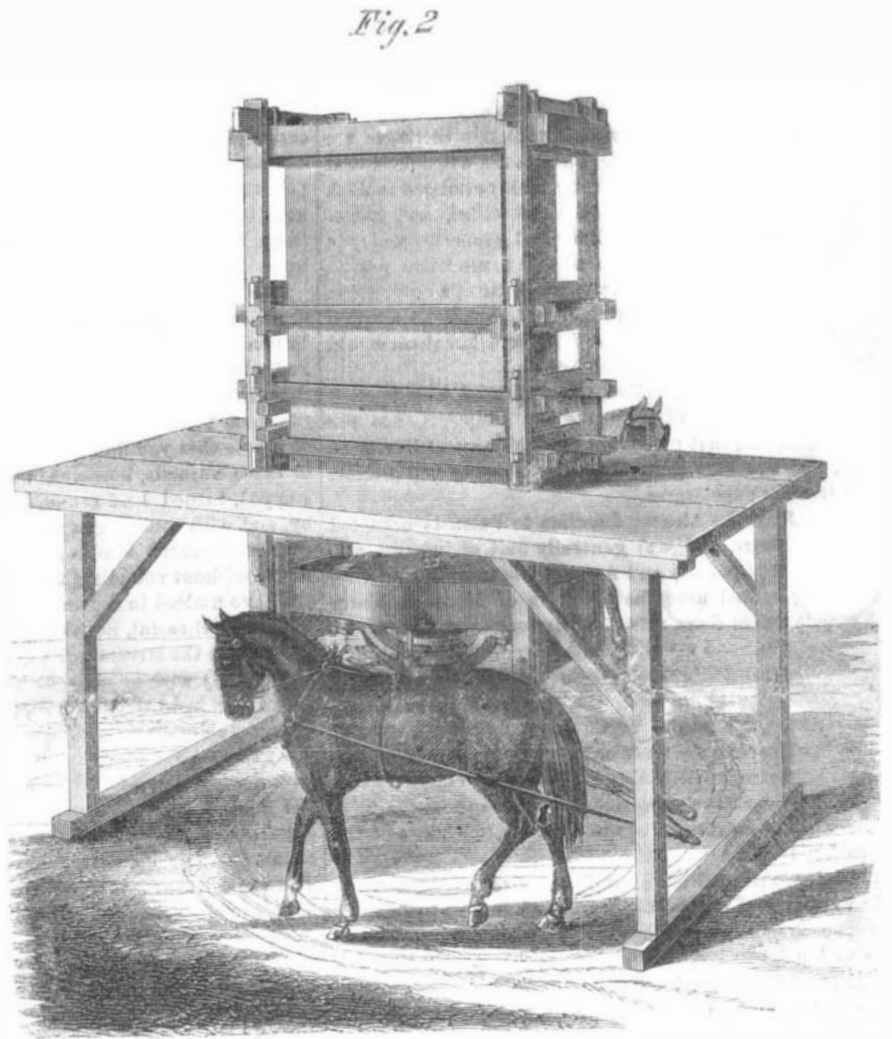
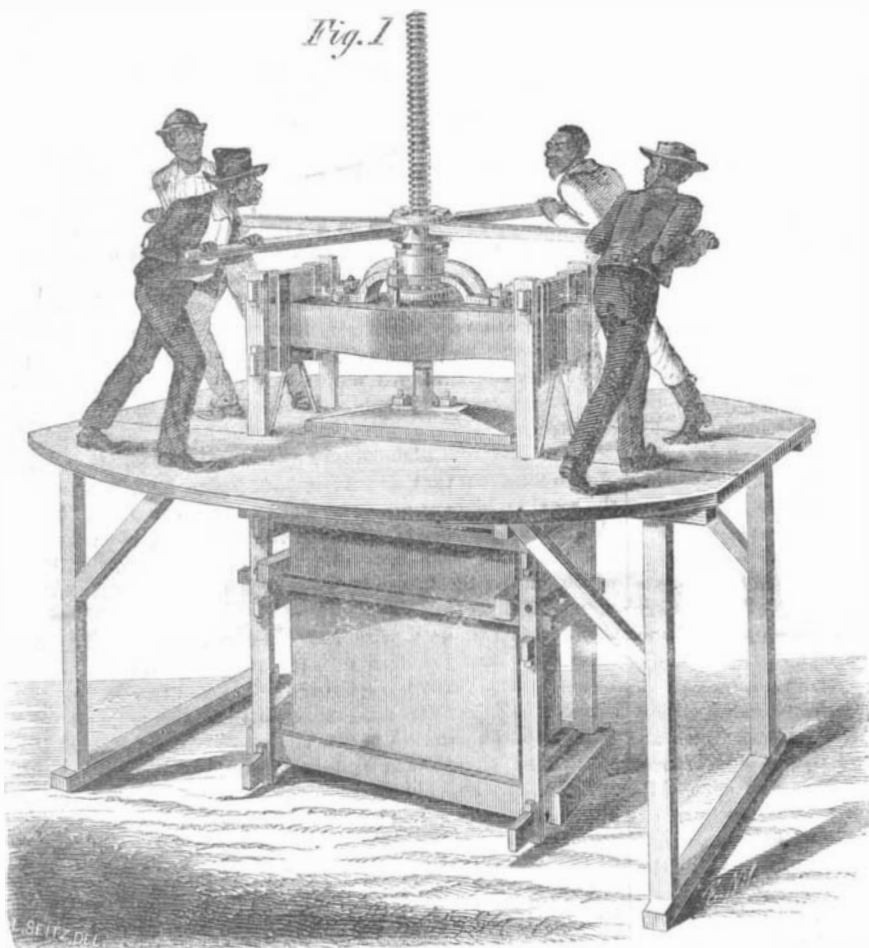
Some screw presses are so constructed that the operating arms, being fixed to the screw, rise and fall as the press is worked. This is a serious objection, as the operating power, whether men or horses, must be adapted to this change of level.

The engravings present views of a simple press adapted for cotton, hay, or other fibrous products requiring compression or baling. One of the engravings represents the press as adapted to man power, and the other as arranged for horse power, the change being effected simply by an inversion of the apparatus. This change can be effected in a few min-

erations, viz., the cleaning of the glass, the preparation of the silvering solution, the warming of the glass, the process of silvering, and the polishing. The description is for a 15½ inch mirror.

1. Rub the glass plate thoroughly with aquafortis, and then wash it with plenty of water and set it on edge on filtering paper to dry; then cover it with a mixture of alcohol and prepared chalk and rub it in succession with cotton flannel.
2. Dissolve 560 grains of Rochelle salt (tartrate of soda and potassa) in 2 or 3 ounces of water and filter; dissolve 800 grains of nitrate of silver in 4 ounces of water. Take an ounce of strong ammonia of commerce and add nitrate solu-

of Italy and Spain, and for which the description corresponds remarkably well, we must leave the botanists to decide. Suffice to say that besides this, the soap root of Europe, the aloe of Jamaica, the soap tree from the coast of Coromandel, and the horse chestnut, yield said juice, some by their leaves, others by their roots. Its peculiar principle—as chemistry teaches us—is the saponin, a body belonging to that class of organic substances which, upon being treated with certain acids or alkalies, yield glucose or starch sugar among their products of decomposition. The saponin is in its pure state a white solid, of a sweet but acid aftertaste, it leaves, when spread over a plate, a fine looking varnish, but the most pe-



SCHOFIELD'S PATENT COTTON PRESS.

utes. The platform sustaining the press is used, whether the machine is operated by hand, or by animal power. Its construction is evident from the engravings. It may be made in sections, so as to allow of being taken to pieces either for facility in transportation when desirable, or for changing the machine from a hand apparatus to one worked by animal power. The posts of the frame supporting the platform may be of wrought iron, connected together by cross beams, and properly braced. A floor may be fixed to the lower cross beams, when the apparatus is to be operated by manual power, and on this floor the packing tube or press may rest.

A strong beam passes across the operating end of the box, or packer, and to this is attached a yoke or arch of iron, or other metal, which sustains the nut of the screw, the friction disk, and the hub of the operating arms. The screw passes through the beam and the rings. Inside the metallic yoke is a cup disk surrounding the screw, and holding between it and the yoke a number of balls, intended to reduce friction. On the other side of the yoke is the double hub for receiving the operating arms. This hub is made in two parts, the disks being bolted together. Inside this hub is the nut for the screw. On that end of the screw which works in the compressing box is a piston which fits loosely the box and compresses the cotton or hay, its surface, as also that of the receiving end of the box, being scored across for the reception of the bands for securing the bale. That portion of the compressor furthest from the arms has the sides of the box removable for the reception of the material to be pressed.

This machine is simple in construction, easy in operation, and presents the advantage of being driven either by hand or by horse power. Patented through the Scientific American Patent Agency, Sept. 3d, 1867, by J. S. Schofield, Macon, Ga.

The rights for all States except Georgia are for sale by the patentee.

Silvering Glass Mirrors.

The process we propose to describe has for its author Prof. Henry Draper, of this city, and may be divided into five op-

tion to it until a brown precipitate remains undissolved. Then add more ammonia and again nitrate of silver solution. This alternate addition is to be carefully continued until the silver solution is exhausted, when some of the brown precipitate should remain in suspension. Filter. Just before using, mix the Rochelle salt and add water enough to make 22 ounces. The vessel in which the silvering is to be performed should be a circular dish of ordinary tin plate and coated with a mixture of equal parts of beeswax and rosin. At opposite ends of one diameter two narrow pieces of wood are cemented to keep the face of the mirror from the bottom of the vessel.

3. The glass is slightly warmed by putting it in a tub or other suitable vessel and pouring in tepid water to cover the glass; then hot water is gradually stirred in.

4. Carry the glass in the silvering vessel, into which the silvering solution has been poured, place the whole apparatus before the window and keep up a slow rocking motion. Leave the mirror 20 minutes in the liquid or half an hour, and wash with plenty of water.

5. When the mirror is perfectly dry, take a piece of the softest buckskin, stuff it with cotton, and go gently over the whole silver surface to condense the silver. You may use some of the finest rouge. The best stroke is a motion in small circles; rub an hour. The thickness of the silver thus obtained is about $\frac{1}{10000}$ of an inch.

Vegetable Soap.

There are certain plants distributed all over the world yielding a saponaceous juice which, to those who are desirous of having a white, delicate skin, must be far preferable to the finest "ambrosial," "milleflower," or "basket of fruit" soap. No doubt the ancients used such plants instead of soap; perhaps they were the same still used for the like purpose in Italy and other neighboring countries. Pliny, in giving the description of one of them, says:—"It grows on a rocky soil and on the mountains, and its leaves are prickly like those of the thistle." If this is the *gypsophila struthium* of Linnée, a plant still used for washing in the southern parts

culiar property is the viscosity of its solutions; when they contain camphor or resin, they will bear the heavy mercury.

Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents.

EDITORIAL CORRESPONDENCE.

Annoyances of Spanish Travel—Valencia, Its Huerto, People, Curious Sights—Old Tarragona by Moonlight—Ancient Churches—Barcelona, etc.

MARSEILLES, Dec. 31, 1867.

A trip from Northern Spain may not inaptly be compared to entering a large animal trap. It is quite easy to get in but it is not so easy to get out unless the tourist is content to do nearly the whole thing over again. From Bayonne to the Mediterranean stops can be made at several stupid but interesting places, which break up the monotony of the trip; but there are no completed lines of railway along the sea, therefore the choice lies between poor coasting steamers or a return over the railway as far back as the junction at Alcazar, a station a few hours south from Madrid where another line branches off to Carthagena, Alicante, and Valencia.

We left Malaga for Valencia at six in the morning, and returned to Cordova where we took another train northward to the Alcazar Junction which we reached at two hours past midnight—nearly an hour behind time. Here we found the Valencia train in waiting, and as it was necessary to purchase tickets and get our luggage weighed and changed there was no time to be lost, and what added to the peril of our situation the agent refused to take French gold, the first instance of the kind we have met since we commenced our travels on the continent in June last. What were we to do in such a dilemma? We had not quite money enough to pay our baggage and buy our tickets to Valencia. It was cold midnight; no bankers, no hotels, no nothing except Spanish insolence accompanied by a downright refusal to take some forty francs