DEVICE FOR SPREADING CIRCULAR SAW TEETH.

We illustrate in connection with the present article a device for spreading the teeth of circular saws to give the proper clearance, and improve the cutting edges.

Fig. 1 is a perspective view of the principal part of the device, shown attached to the saw; and Fig. 2 is a view of a punch used in connection with the plate, B, in Fig. 1, for spreading the teeth.

A, in Fig. 1, is a plate made of cast or wrought metal, with ears attached to its sides between which the teeth of the saw are placed during the operation of spreading. B is a steel plate firmly attached to the plate, A, by screws, or in any other suitable manner, and which serves as an anvil in in spreading the teeth.

The plate is applied as shown in Fig. 1. The ears, C, serving to hold the plate in position on the saw. The distance to which the ears lap on to the teeth of the saw is governed by the gage screw, D. The outer ends of the ears, E, are connected by a pin, F. The tooth to be operated upon is passed through the space between this pin and the steel plate, B, as shown, the position of the point of the tooth being governed by the gage screw, D.

The space between the ears, C, is designed to be just wide enough to admit the saw at or near the base of the tooth, and the space between the front ear, E, admits the point of the tooth.

When the point of the tooth is placed on the steel anvil,

Fig. 1

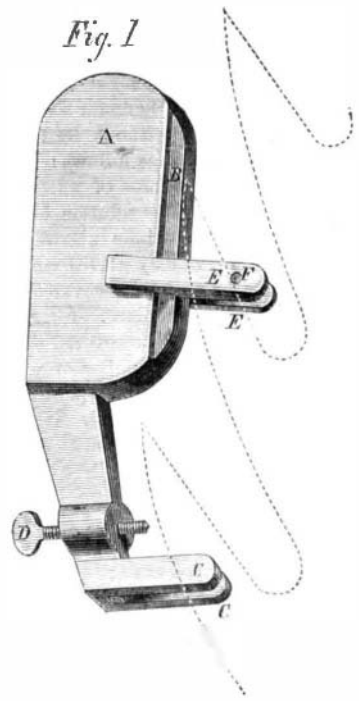


Fig. 2

B, the punch shown in Fig. 2 is applied to it, and a blow of a hammer thereon spreads the tooth laterally in each direction, forming small lips on each side of the point, which are claimed to serve in place of the ordinary "set" to give the proper clearance. The punch is made in the form shown, so that it may be set squarely on the tooth.

It is claimed that the cutting point of the tooth is thus made thin and sharp, and that its edge may be kept longer under wear than by ordinary filing. Also that the lips formed on the tooth make the cut much smoother than when saws set and filed in the old style are used.

Patented, through the Scientific American Patent Agency, October 14, 1870, by W. H. Rudolph, Clarksville, Tenn., whom address for further information.

Honors to the Inventor of Telegraphy.

Prof. S. F. B. Morse, the inventor of telegraphy, presided at the late annual meeting of the Western Union Telegraph Company, at the close of which Mr. William Orton, President of the company, made the following very "personal" remarks:

"I cannot but regard it as a circumstance of peculiar interest connected with this day's proceedings, that at the head of this table, and presiding over this body sits our venerable friend, Professor Morse, the father of all the telegraphs. In the same presence sit to-day, participating in the annual services of the largest telegraphic organization of the world, the man who made its existence possible, and the men who made it. It seems a deeply interesting fact that from the brain of a single man who yet mingles with us thus so unassumingly, and who, though crowned with the honored hoar of nigh eighty years, is yet clear of eye and firm of foot, there sprang a design which has given a language, and a literature, and a means of instant audience with the world. It is significant, also, of that design that is so simple as to be elementary, and so complete as to have challenged, unimproved, the acceptance of the world. I therefore, for myself, and I think for you, also, gentlemen, desire to offer to our illustrious Chairman the warmest congratulations on the auspicious development of the art to which he gave birth, and to desire for him all that may render his ripened years as happy as they are honored."

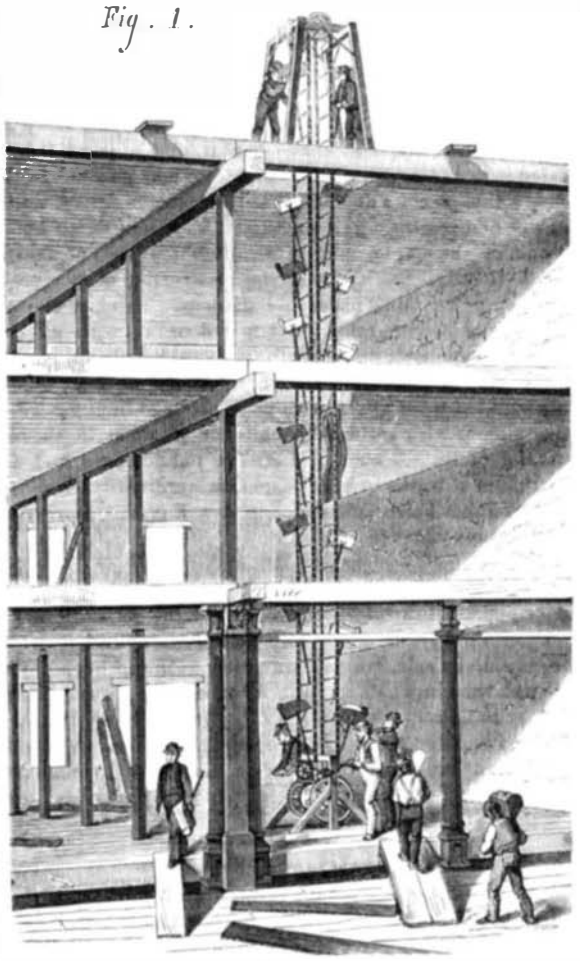
The telegraph operators and others in various parts of the country have contributed the money for the erection of a splendid monument of Morse, which is soon to be placed in Central Park.

HORRORS OF WAR.—It will bring home to our readers the murderous extent and horrors of the war when it is announced that the Prussian Government has ordered the supply of two hundred thousand wooden legs.

POWER'S ENDLESS LADDER HOD ELEVATOR.

The folly of carrying bricks and mortar up long ladders by the climbing action of human arms and legs, has been often deprecated in this journal as a disgrace to modern engineering. Nor have our views upon this subject been unseconded. Prominent architectural and engineering periodicals, both in this country and Europe, have joined in our cry of "down with the hod."

Fig. 1.

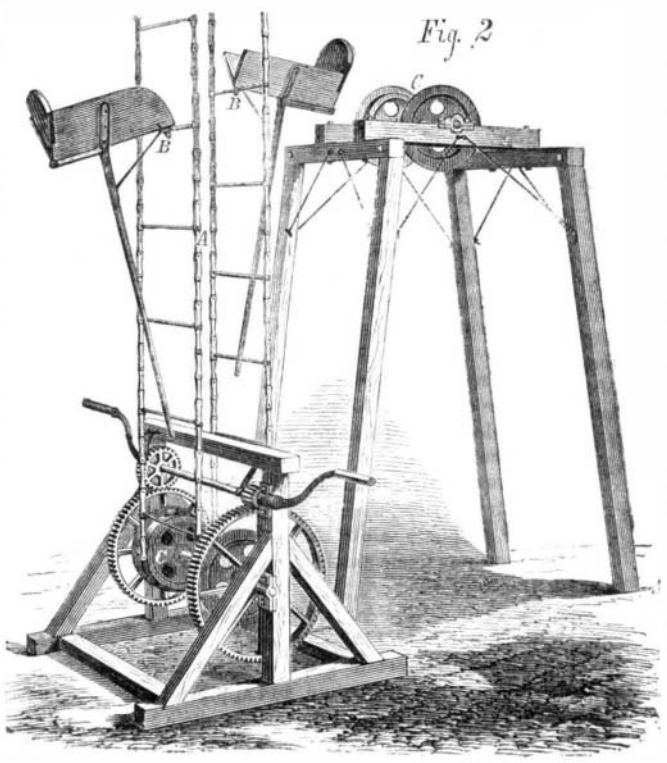


It seems, however, that the hod counts for more than we and our cotemporaries have reckoned. In conversations with practical builders we have been told that no other instrument has yet been devised rivaling in convenience the hod for carrying on scaffolds, over joists, and narrow plank ways, and on this account devices heretofore invented to elevate building materials, have failed to secure popular favor.

We illustrate, however, this week, a device which retains all the convenience of the hod as a distributer with ample elevating facility, and which is both simple and ingenious.

It consists of an endless chain ladder, A, Fig. 2, with iron rungs, upon which the hods with their contents are suspended by flat hooks, as shown at B. The endless chains run over flanged pulleys, C, placed on a suitable frame at the top, and the lower ones being impelled either by hand or other power. Hand power is, on all accounts, preferable, perhaps, for this purpose, and it also avoids the jar occasioned by steam or horse power.

Fig. 2



The hods are placed upon or taken off the rungs without stopping the motion of the endless ladder, and as the weight of the hods on one side is balanced by that of those on the other side; no power is expended except that required to overcome the friction of the machine, and to raise the materials.

We are told that seven hods of bricks and mortar can be raised per minute by the labor of two men at the cranks, and to any hight usual in building; an immense increase of useful work, over what the same men could perform in climbing a ladder with hods upon their shoulders, carrying their own weight with that of the hod and contents.

The space necessary for passing the hods up is only twenty inches by six feet. The apparatus being vertical requires less space than the ordinary ladder. The hods being detachable from the chain, the materials do not need to be handled to put them in hods or buckets for distribution after their elevation, as is the case with bucket elevators and other mechanical devices, and the breakage caused by this handling is saved.

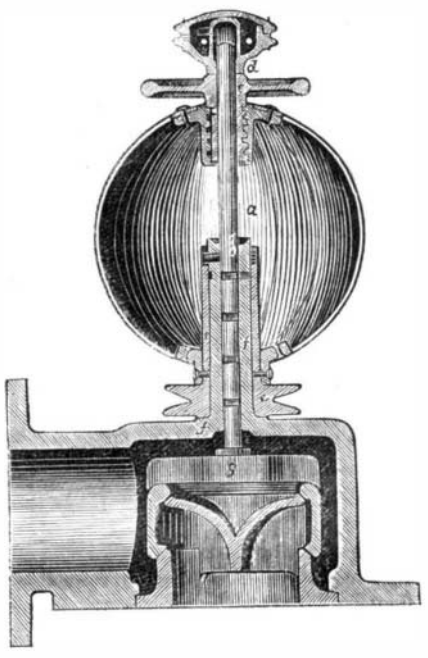
The apparatus is now in use by some of the most extensive builders in New York and Chicago, and we are informed that two manufactories in Chicago are now employed in their construction. Portions of the right will be sold.

Patented, through the Scientific American Patent Agency, July 14, 1870, by Jesse Powers. Address for further information J. Powers, Broadway, corner 49th street, New York or 106 Monroe street, Chicago, Ill.

BOURNE'S SPHERICAL STEAM ENGINE GOVERNOR.

Mr. John Bourne, who has an enviable reputation as a constructor of, and writer upon, the steam engine, has recently invented the novel form of governor which forms the subject of the accompanying engraving, copied from the *Mechanics' Magazine*.

In the engraving, *a* represents a hollow sphere, which is made of thin brass, rendered elastic by hammering and divided into segments. On one end of the central spindle, *b*, is



a brass nut, *c*, which is prolonged outwards and terminates with a small hand wheel. By means of this wheel and nut the valve is opened or shut, and by it also the point of cut-off is regulated. The spindle, *b*, is screwed into the valve, and both are prevented from revolving by a flat rib, which is cast on the under side of the valve cover, a similar rib being formed on the valve, and with which the rib on the cover engages. On the extreme end of the spindle is a nut, *d*, which keeps the hand wheel and nut in the position in which it is set. This nut also serves a second purpose, that of a lubricator, being fitted as an oil cup. The brass, *c*, is turned with grooves and forms a thrust bearing for the upper part of the sphere in a manner similar to that adopted for screw propeller shafts. The ribs of this brass work in corresponding grooves in the metal cap, which encircles them, and to which the upper portion of the brass sphere is attached. The base of the elastic sphere is attached to a sleeve, *e*, which is made in one with the pulley, over which a gut band from the crank shaft of the engine passes, and which gives rotation to the ball. The sleeve *e*, revolves freely upon the fixed portion, *f*, of the valve casing, and is prevented from rising upon it by a collar, which is fixed by a side screw to the end of *f*.

The arrangement illustrated is one in which the central spindle is connected direct to an ordinary double beat or equilibrium valve, *g*. The governor, however, may be made to operate on any other kind of throttle valve, and can be fitted to existing engines It will be seen that when the ball is put into revolution, the centrifugal force causes the poles to approach each other. As, however, the lower pole is confined to the same horizontal plane, the whole vertical motion occurs at the upper pole, and depresses the spindle and closes the throttle valve to a corresponding extent.

As a marine governor this apparatus seems especially suitable, being unaffected by the rolling or pitching of the vessel. Mr. Bourne has succeeded in producing an efficient, compact, and elegant apparatus, which will doubtless come into extensive use. It adds one more testimony to his ingenuity and mechanical ability, and like the rest of his inventions is based upon correct and sound principles.

The rolling mills at San Francisco, which have been in operation two and a half years, use 400 tuns of iron monthly, turning out 230 tuns of finished iron, of which ninety tuns consist of rails. Besides railroad iron they have been turning out car axles, spikes, shoe shapes, and general railroad work