No. 689,279. Patented Dec. 17, 1901.

E. S. BRETT.

STEAM STAMP.

(Application filed Dec. 17, 1900.)

(No Model.)

Fig 1

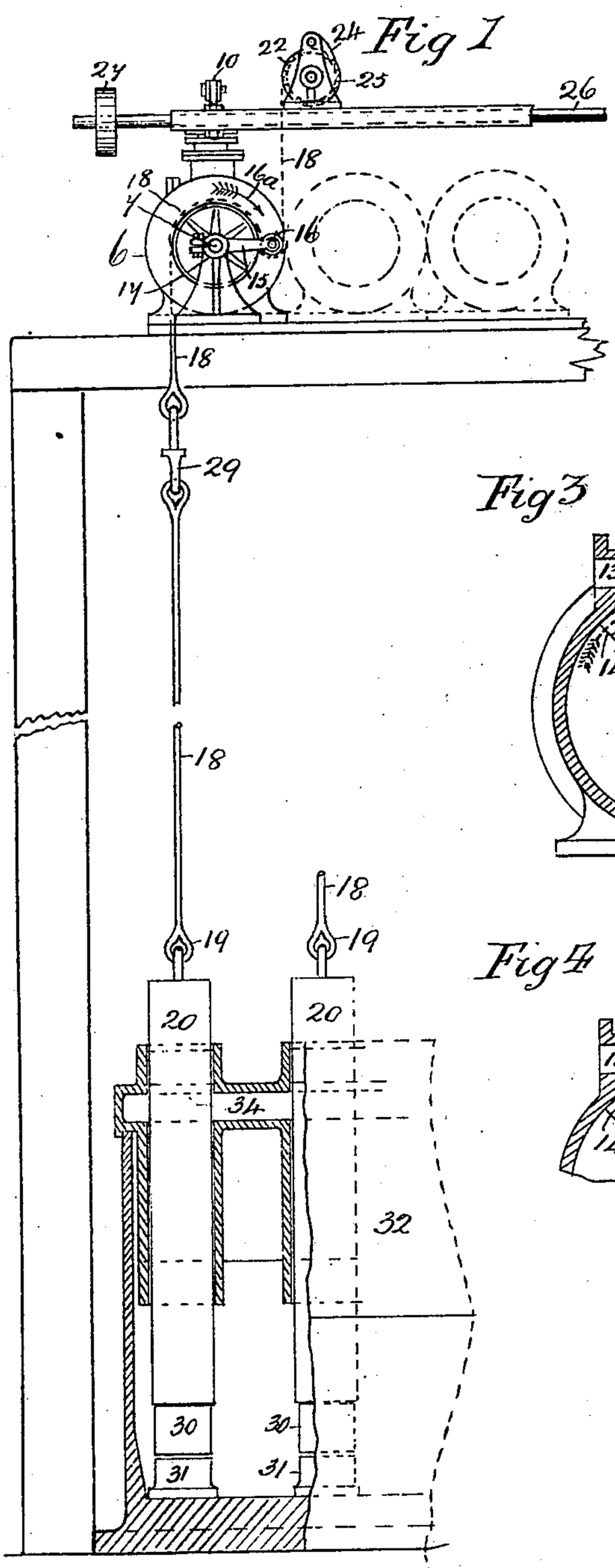

Fig 2

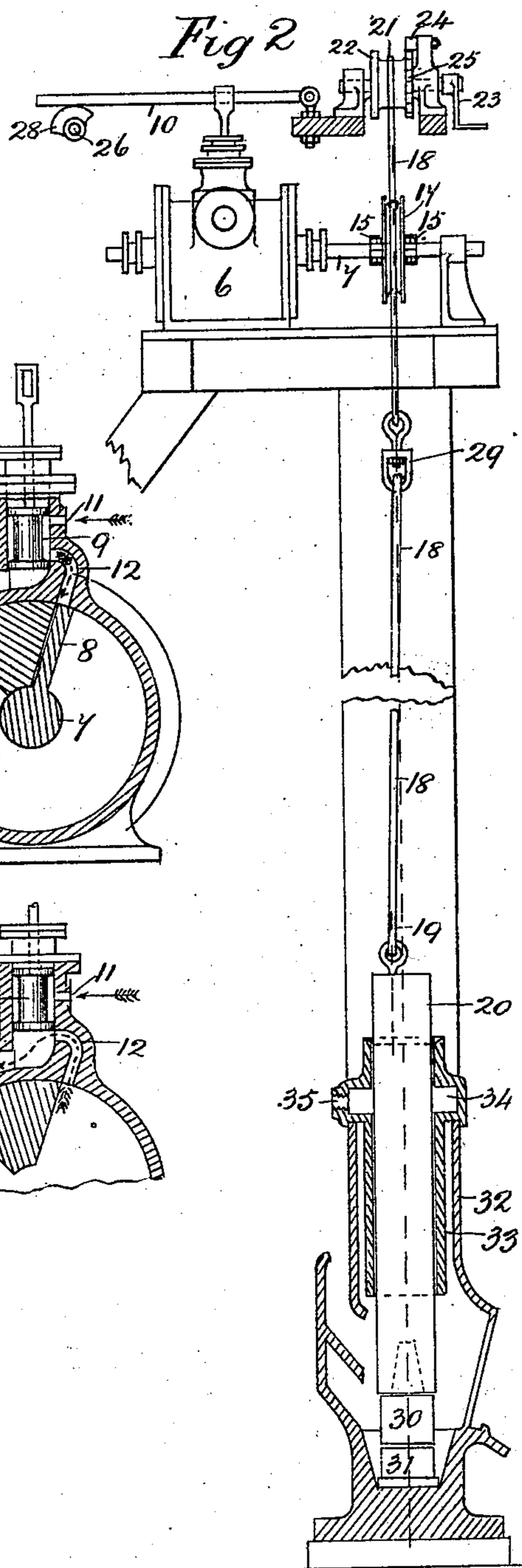

Fig 3

Fig 4

Witnesses
Charles J Powell
C Hayward Powell

Inventor
Edward Samuel Brett

UNITED STATES PATENT OFFICE.

EDWARD SAMUEL BRETT, OF COVENTRY, ENGLAND.

STEAM-STAMP.

SPECIFICATION forming part of Letters Patent No. 689,279, dated December 17, 1901.

Application filed December 17, 1900. Serial No. 40,222. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SAMUEL BRETT, a subject of the Queen of Great Britain, and a resident of Ashleigh House, Counden road, in the city of Coventry, England, have invented new and useful Improvements in Steam-Stamps, (for which I have filed applications for patent in the following countries: Great Britain, under No. 9,494, bearing date May 24, 1900; Germany, under No. 12,022, bearing date October 9, 1900; France, under No. 292,690, bearing date October 9, 1900, and Belgium, under No. 120,760, bearing date October 13, 1900,) of which the following is a specification.

My invention relates to improvements in the construction and arrangement of steam-stamps which may be applied to such stamps that are used for forging metals or for crushing ore or the like purposes, and refers more particularly to the class of stamps described and illustrated in specification for Letters Patent No. 478,393, bearing date July 5, 1892. Its objects are to provide improved means, in combination with the lifting mechanism, whereby an increase of movement of the hammer is obtained in proportion to that of the cylinder-piston movement; also, means in combination with such arrangements for adjusting the required varying length of rope during certain operations; also, improved means whereby the hammer may have a gradual rotative movement in adddition to its usual rising-and-falling movement. I attain these objects by the mechanism illustrated in the accompanying drawings, in which I have shown my invention as applied to a steam-stamp used for ore-crushing purposes, in which—

Figure 1 is a part front view of my invention. Fig. 2 is a side view of my invention. Fig. 3 is a sectional view of cylinder and valves. Fig. 4 shows the valve in exhaust position.

Only such parts of the machine are shown as are necessary to explain my invention.

Similar characters refer to similar parts throughout the several views.

Upon suitable framework are mounted one or more cylinders 6, according to number required. In this cylinder is carried the part rotating shaft 7, operated by the plate-piston 8, to which is given a part rotative movement—that is, through somewhat less than a complete revolution. The steam is controlled by suitable valves—such, for instance, as the vertical moving valve 9, operated by lever 10. Steam is admitted at 11 and passes through valve 9 and the port 12 behind piston. When valve is raised, however, to position shown in Fig. 4, the steam is allowed to escape through exhaust-port 13. The front of piston is always open to the atmosphere by means of passage 14.

Upon shaft 7 are rigidly secured the lifting-arms 15 15, and between these is carried the lifting-pulley 16, which is free to revolve on its axis.

17 is a pulley lying also between the lifting-arms and is loose upon the shaft 7.

18 is a wire rope, (or band,) whose one end is secured at 19 to the hammer-head 20, while its other end is adjustably secured at 21. This may be effected by being wound on drum 22, which may be rotated by handle 23 and retained in any desired position by pawl 24, engaging with teeth 25. This rope passes from drum 22 around the lifting-pulley 16 and thence partly around the pulley 17 and thence down to the hammer-head 20. Thus it will be seen that upon the part rotation of piston-shaft 7 the arm 15 moves in the direction of arrow 16^a, taking with it the rope 18, whose one end being secured at 21 a double length or thereabout is taken up around the pulley 17 relative to the distance traveled by pulley 16, the hammer-head 20 being raised accordingly.

It will be readily seen that any variation in the length of rope required, whether due to elongation through wear, or as in the case of pile-driving when the rope requires varying as the pile is being driven home, may be readily accomplished by the drum 22 in the manner stated.

26 is a rotating shaft driven by any suitable means through pulley 27, upon which are carried the cams 28, which operate the levers 10, so as to open and close them automatically.

The rope 18 is divided in its length by swivel 29 to permit of the gradual rotation of the hammer-head 20, which is effected by securing the eye 19^a to the head at a little distance from the center of the head. It is found

that by this means the out-of-center pull each time it is raised moves it around a little. By this means the faces of the hammer 30 and the anvil 31 wear evenly, the motor-box 32 (which is of what is known as the ordinary "Homestake" pattern, but forms no part of this my invention) having the guide part 33, in which the hammer-head 20 works, and the waterway 34 for lubricating the same, the water being admitted at 35.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a steam-stamp the combination of the engine having part rotative shaft 7, pulley 17, and arms 15, of the lifting-pulley 16, rope 18, and hammer-head 20, all arranged as set forth and shown on the drawings.

2. In a steam-stamp, the combination with a hammer-head of a rope and a connection for securing the rope to the hammer-head, said connection being out of central line with the hammer.

EDWARD SAMUEL BRETT.

Witnesses:

CHARLES T. POWELL,

C. HAYWARD POWELL.